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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,452	03/26/2004	Schat Sutardja	MP0467	8949

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5445 CORPORATE DRIVE  
SUITE 400  
TROY, MI 48098

EXAMINER

VU, BAO Q

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/810,452

Applicant(s)

SUTARDJA, SEHAT

Examiner

Bao Q. Vu

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-11 and 14-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-11 and 14-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Claim Rejections - 35 USC § 103**

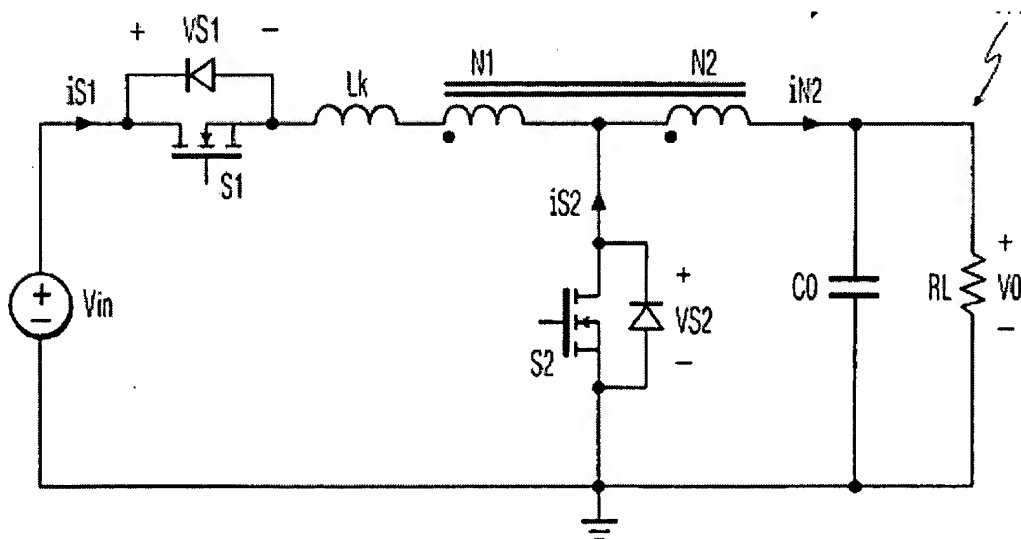
1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 5, 6, 9, 11, 14, 15, 16, 19, 21 and 23 rejected under 35

U.S.C. 103(a) as being unpatentable over Qian (USP 6,512,352) in view of Lu et al.

(USP 5,636,107). Qian discloses the claimed invention a coupled inductor with first, N1, and second, N2, windings connected in series to form a common node, a conduction switch, S1, and a freewheeling switch, S2, the inductor is formed on a single core, and an output capacitor, Co. See figure below.



3. Qian discloses the claimed invention except for turns ratios of the inductor devices. Lu discloses that it is known in the art to provide the turns ratios of the inductor devices of having a relationship of the  $N_1/N_2$  windings of the transformer to be 2. The turns ratio indicates the amount by which the transformer increases or decreases the voltage applied to the primary. For example, if the secondary of a transformer has two times as many turns as the primary, the voltage induced into the secondary will be two times the voltage across the primary. (As is with the case of applicant's claimed invention). If the secondary has one-half as many turns as the primary, the voltage across the secondary will be one-half the voltage across the primary. However, the turns ratio and the current ratio of a transformer have an inverse relationship. Thus, a 1:2 step-up transformer will have one-half the current in the secondary as in the primary. A 2:1 step-down transformer will have twice the current in the secondary as in the primary. (As is with the case of applicant's claimed invention).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide the turns ratios of the inductor devices of having a relationship of the  $N_1/N_2$  windings of the transformer to be 2 of Lu with the controlled inductive switching circuit of Qian, in order to provide a simplistic approach to control the output voltage and output current induced in the secondary by changing the turns ratio of the transformer.

4. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (USP 6,512,352) in view of Lu et al. (USP 5,636,107) and further in view of

Boeckman et al. (USP 6,184,666). Qian and Lu disclose the claimed invention (see above paragraphs) except for the independently controlled parallel switches.

Boeckman discloses that it is known in the art to provide the independently controlled parallel switches. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide the independently controlled parallel switches of Boeckman with the controlled inductive switching circuit having a turns ratio of 2 of Qian and Lu, in order to reduce the heated generated by either switch when in operation to create a redundancy to handled higher voltages and reduces the failure rate of the switches.

5. Claims 10, 22, 20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (USP 6,512,352) in view of Lu et al. (USP 5,636,107) and further in view of Yang et al. (USP 6,404,175). Qian and Lu disclose the claimed invention (see above paragraph 2) except for the parallel-connected voltage regulators with the phase controller. Yang discloses that it is known in the art to provide the parallel-connected voltage regulators with the phase controller. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide the parallel-connected voltage regulators with the phase controller of Yang with the controlled inductive switching circuit having a turns ratio of 2 of Qian and Lu, in order provide a controlled current sharing and current balancing techniques achieved by utilizing the parallel-connected voltage regulators with the phase controller.

6. Claims 8, 18 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qian (USP 6,512,352) in view of Lu et al. (USP 5,636,107) and further in view of Dwelley et al. (USP 6,166,527). Qian and Lu disclose the claimed invention (see above paragraph 2) except for the on-time conduction controller with multi-level gate driver circuit. Dwelley discloses that it is known in the art to provide the on-time conduction controller with multi-level gate driver circuit. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide with the controlled inductive switching circuit having a turns ratio of 2 of Qian and Lu, with the on-time conduction controller with multi-level gate driver circuit of Dwelley, in order to provide a controlled switching scheme that conserves power by driving less than all the switches when the input voltage is higher or lower than the output voltage.

### ***Response to Arguments***

7. Applicant's arguments filed 10-24-06 have been fully considered but they are not persuasive. It is well known that all transformers have leakage inductance. Applicant has misconstrued the prior art "Qian states in Col. 2, lines 55-63" is part of the background of the invention. It is not part of the invention; this is "prior art" description of the transformer. The prior art description is different than that of the invention being claimed in Qian.

8. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

9. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

10. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Q. Vu whose telephone number is (571) 272-2088. The examiner can normally be reached on Monday-Thursdays, 8:00AM- 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Bao Q. Vu  
Primary Examiner  
Art Unit 2838

November 16, 2006